

Before the  
**FEDERAL COMMUNICATIONS COMMISSION**  
Washington, D.C. 20554

In the Matter of	
Public Notice. Regarding Vermont Transco, AMTS rule waivers	DA 11-311 WT Docket No. 11-26

To the Chief, Wireless Telecommunications Bureau

Statement

“Petitioners,” the undersigned entities, submit the following statement, including to oppose parties other than Vermont Transco that, in this docket, generally advocate AMTS rule waivers, including Maritime Communications/ Land Mobile LLC (“MCLM”) and its various spectrum assignees represented by the Keller & Heckman law firm and other parties.

Petitioners advocate use of AMTS as described in the Exhibit hereto (from a previous FCC filing by Petitioners). In the case of Vermont Transco (“Transco”), Petitioners have, as previously formally stated to the FCC, maintained sufficient AMTS spectrum in Vermont and the adjacent States (including along Lake Champlain and other navigable waterways in the region of the nation) to provide for the maritime services and wider transportation services using AMTS spectrum described below, independent of however Transco decides to use its AMTS spectrum, which one of Petitioners sold to Transco. While Petitioners believe that all ATMS licensees will serve the public interest by acting in accord with the attached statement, Petitioners retain sufficient AMTS spectrum to effectively pursue that purpose in the areas of and surrounding Transco and

all other areas of the nation in which the hold AMTS spectrum at this time and in which  
in the past the sold any amount of AMTS spectrum.

Respectfully submitted,



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Warren C. Havens  
President of each Petitioner listed below

*Skybridge Spectrum Foundation*  
*ATLIS Wireless LLC*  
*V2G LLC*  
*Environmentel LLC*  
*Verde Systems LLC*  
*Telesaurus Holdings GB LLC*  
*Intelligent Transportation & Monitoring Wireless LLC*

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March 21, 2011

## Exhibit

### Description of Petitioners' and AMTS Best Use

#### Including Petitioners' AMTS-Licenses and AMTS Applications for Critical Public-Interest Wireless for Land and Maritime Transportation, and Related

Petitioners hold AMTS geographic spectrum nearly nationwide that is, of course, fully listed under their names on ULS. The page immediately following this Appendix's text is a map depicting their AMTS licenses.

This purpose of this Appendix is to summarily describe Petitioners and their major plans and actions, and why their AMTS is essential for public interest wireless, and thereby further explaining (augmenting the Petition's main text) why the Petition should be granted.

AMTS is a mobile service, created for unique multi-site, full-waterway continuity of coverage and automatic services. It is in the VHF band (which extends up to 300 MHz) and is ideal for long-range mobile coverage. It can also be used for land services. *It is a waste to use AMTS spectrum primarily for fixed land services* (including utility "smart grid" and other telemetry),<sup>1</sup> since those can be performed very well with much higher spectrum for well-known reasons (the end points are known and can be configured for good paths, typically LOS; and higher gain antennas can be used; and less overhead is needed due to less demanding mobile environment, etc.). There is ample higher spectrum for fixed wireless, but there is very little spectrum below the 225-400 MHz military-only band for the services Petitioners plan, described herein—which is the highest and best use of AMTS.

Petitioners also hold licenses nationwide in the 220 MHz, Part 22 "Paging" (from Auction 87), M-LMS, MAS and VPC services. See:

<http://www.scribd.com/PTC-Positive-Train-Control-220-MHz-217-222-MHz-Plus-for-Government-Trains-Smart-Infrastructure-Skybridge-Spectrum-Foundation/d/45303607>

<http://www.scribd.com/doc/36614169/Sky-Tel-Atlas-900-200-40-MHz-for-Smart-Transport-Energy-Environment-V3-9-10-Public>

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<sup>1</sup> Also railroad wireless, including for "Positive Train Control" is closer to fixed wireless in ease of coverage, than road-way and peripatetic land mobile wireless, since railroad wireless generally involves coverage along flat or low-grade wide railroad corridors, antennas on relative high train vehicles, ample power, and higher-gain bi-directional base station antennas. For example, GSM-R and TETRA which provide train wireless in Europe and most of the rest of the world outside of North America use 800-900 MHz spectrum, including in less populated areas for high-capacity services for operation of the trains. Coverage is ample due to the reasons just noted.

The LLCs Petitioners are majority owned by Warren Havens of Berkeley California, who serves as their President. They have different other owners and financing, FCC licenses, and other differences, but cooperate as described herein.

Petitioners' nationwide integrated wireless plans for use of their respective FCC licensed spectrum are lead by Skybridge Spectrum Foundation ("Skybridge"). These plans are substantially described in various documents (and document "collections" summaries) at this link:<sup>2</sup>

[http://www.scribd.com/warren\\_havens/shelf](http://www.scribd.com/warren_havens/shelf).

Skybridge, commenced in 2007, is a nonprofit corporation recognized by the IRS under Section IRC § 501(c)(3) supported by outright charitable donation of FCC spectrum, cash, personnel and other support by the other Petitioners, who do not accept any return consideration.<sup>3</sup>

Skybridge and these supporting other Petitioners (together called "SkyTel" in the above-noted online published documents at Scribd and Docstoc) began developing and presenting its plans to the FCC and publicly since approximately year 2001. The core elements have not changed, which is to use their 200 MHz (AMTS and 220-222 MHz) and 900 MHz (first, M-LMS, then latter adding MAS and Part 22 900 MHz) for nationwide advanced wireless for Intelligent Transportation Systems ("ITS") and compatible "intelligent" or "smart" energy-grid systems, environmental monitoring and protection, and emergency response, with the core services (for safety and efficiency of these systems and purposes) at no cost to government and the general public. Petitioners operate on the principal that business should first be in the public interest and achieve that, and then make a fair profit. All profits made in all Petitioners have been, to date (for over 10 years when they began) reinvested in this described plan and on this principal.

In early 2007, the LLCs Petitioners created and capitalized (including with FCC license donations) Skybridge to advance these plans. *Skybridge is unique in the nation as a nonprofit with major nationwide FCC-license spectrum holdings, and, with its supporting other Petitioners, unique in the above noted plans and principle.*<sup>4</sup>

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<sup>2</sup> For redundancy (and since Scrib has had problems with relaying some uploaded documents to search engines that it has not resolved fully), Skybridge recently began publication using Docstoc as well as Sribd. See:

<http://www.docstoc.com/profile/warrenhavens01>

<sup>3</sup> Under applicable State and IRS law, and guidance from nonprofit-law tax counsel, that is not permitted, and violations result in severe monetary sanctions or loss of tax-exempt status.

<sup>4</sup> The nation's radio spectrum is meant to serve first and foremost the public interest and only secondarily private-party profit. FCC government licensees directly serve, or should, the public interest. Most FCC commercial private-entity licensees do not first and foremost serve the public interest, when that is achieved, it is by "the private

Skybridge, including its plans and relations with these other Petitioners, is subject under applicable law to audit by Attorneys General of the States in which it is domiciled and operates (in addition audits by the IRS and State tax authorities), and is also happy to provide any level of detail to other governmental entities with whom it interacts, including the FCC (for any reasonable purpose). Unlike most private businesses, a nonprofit acting in support of government and its public-benefit programs seeks to be public in programs. This is reflected in the Skybridge Scrib and Docstoc links above.

Petitioners planned and executed obtaining this spectrum collection for over a decade, and implemented it when the suitable auctions arose. Skybridge, a nonprofit, by structure and law has no owners and no private-party beneficiaries: its sole purpose stated to and approved by the IRS is to serve at no cost, or on non-profit basis, US governmental entities (Federal, State and local) and their purposes described in their laws and programs for more safe and secure transportation, energy, environment and emergency systems. The other Petitioners, private commercial LLCs, do not have public, venture capital or other financing or owners that create demand for short- or medium-term profit or stock-price performance and thus are able to pursue, with Skybridge, the long-term plans and executions described herein in the public interest.

In 2010, Petitioners (including Skybridge) bought certain 35, 43 and 900 MHz Part 22 licenses in Auction 87 to advance these plans: the 900 MHz for (as rules permit) especially high-power one-way transmission of N-RTK correction data to advanced GPS devices, including in RF-difficult urban areas, for high accuracy location (needed for ITS, rescue and other critical purposes), and the 35 and 43 MHz for nationwide Meteor Burst Communications (“MBC”)<sup>5</sup> (which only operates well in 30-50 MHz) also to deliver said

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markets” in operation, to the degree those are fair, lawful and efficient. *What is missing in FCC licensing and wireless business is the US “third sector,” the nonprofit private sector. That sector needs to be more active in support of government for public interest wireless including of nationwide scope. Skybridge and its supporting LLCs are doing that, and encourage others to do the same:* nonprofits do not “compete” with each other to serve government and the public, but cooperate for the common goals.

<sup>5</sup> MBC wireless links (from a master station to a remote fixed or mobile transceiver station) *span up to about 2,000 km per link*: the maximum being limited mostly by the curvature of the Earth in relation to the height above the earth of the atmospheric band in which the “meteor bursts” take place. These “bursts” are coherent ionized field created by the vaporization of the constant stream of very small meteors, billions a day over the US, entering the atmosphere: these re-radiate or reflect radio transmissions in the 30-50 MHz range back to Earth (lower frequencies have too much interference and higher ones are not sufficiently re-radiated or reflected back to Earth). With enough base stations and enough channels at each—as Petitioners plan (with spectrum already secured in Auction 87)—a MBC network can approach close to real-time data, and in any case is highly predictable and secure. It is more secure than other forms of wireless and wireline communication for well-know reasons described in Skybridge’s Scribd link given above. Petitioners’ MBC plans are guided by leading MBC experts in the US, including Dr.

N-RTK corrections for high accuracy location nationwide, even in the most remote areas, at very low cost and with quick coverage possible (it will take only 5-10 master stations to cover the nation: the US Department of Agriculture already covers most all of the nation with four master stations for its SNOTEL and SCAN systems using MBC). MBC is the only means to achieve truly ubiquitous coverage in the nation (and far offshore for maritime)<sup>6</sup> of low-data-rate but highly secure, redundant and cost-effective coverage: this more critical as “broadband” for many forms of wireless that are critical for “intelligent” transportation, energy, environment and emergency systems. MBC will also can provide a redundant backup up of, and certain augmentation of, GPS due to this ubiquitous coverage, the sub-nanosecond time transfer and synchronization it enables, delivery of N-RTK corrections, etc.<sup>7</sup> MBC will also provide the most secure and resilient (in man-made or natural wide-area emergencies) means of basic communications. All of these MBC assertions are documented by expert analysis in the Skybridge Scribd link given above, in the Collection on Meteor Burst Communications, as well as in hundreds of other publications by experts.

Skybridge and the other Petitioners (called “SkyTel” for short on Scrib and in other public contexts) have the only spectrum and plan that, upon an objective look at established non-controversial technical and economic expert showings, can provide nationwide ubiquitous backup standby communication, location, and precise-timing services in case of major disasters practically and cost effectively: The network and services will be internally cost effective, and to government entities and critical infrastructure operators provided at no cost or on cost basis. It is also non controversial that apart from terrestrial-origin natural and manmade disasters, larger space-weather events—major solar flares—have the potential to cause far greater and longer lasting disasters. SkyTel’s nationwide meteor burst communications in the 35-43 MHz range, linked with mobile ad hoc mesh networks using SkyTel’s 200 and 900 MHz, can provide

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Robert Mawrey, Dr. Robert Desourdis, and other wireless experts. (Petitioners have built up substantial expertise in MBC internally, as well.)

<sup>6</sup> See footnote 5 above regarding range. One MBC maritime application (with comments added by Skybridge- SkyTel) is described here (there are many others):

<http://www.scribd.com/doc/43725345/Meteor-Burst-Comm-for-Global-Shipping-Container-Tracking-Globaltrak-Patent-2007>.

<sup>7</sup> Accurate and reliable GPS for location and timing is increasingly essential to the nation’s wireless, energy, financial, security, emergency response and other systems, but it is not very accurate in urban areas and some rural rugged-terrain areas, due to satellite blockage and RF multipath. Augmentation is needed in those areas. GPS can also easily be jammed, and may be knocked out by hostile forces, or especially severe solar Coronal Mass Ejections. Augmentation with wireless-delivered N-RTK is one of the solutions for especially high accuracy needed for critical ITS and other purposes, and an independent location system to GPS is needed to back up GPS in case it is jammed or knocked out (which can also provide augmentation).

the needed back up communications, location, and precise timing: this will be provided at no cost, or at cost. See, e.g.,

<http://www.scribd.com/doc/48737836/Meteor-Burst-Communication-Essential-in-Major-Solar-Flare-Take-Downs-of-Communication-and-Power-Systems>

<http://www.scribd.com/doc/48737874/DHS-National-Infrastructure-Protection-Plan-note-on-defect-for-lack-of-dedicated-wireless>

These matters are, unfortunately, outside of the common discussion in the private radio community, including before the FCC.

*Petitioners' AMTS 200 MHz is a critical component of this disaster-backup wireless, also: it will provide the principal spectrum for coverage between the Meteor Burst relay stations and vehicles, persons and other moving things.*

In 2009 and 2010, with University researchers, Petitioner set up and funded a research program at the University of California in nationwide ubiquitous cooperative high accuracy location ("C-HALO") which included a cost-benefit study reflected here:

<http://www.scribd.com/doc/37796067/Nationwide-Cooperative-High-Accuracy-Location-C-HALO-Infrastructure-Cost-Benefit-Study-Aug-2010-Interim-Report-UC-Berkeley-Institute-of-Transport>

The final report will be published in early 2011: based on pre-publication summaries given to Petitioners: "...including all types of accidents (fatal and non-fatal), the [annual] benefits are estimated to be: \$160-\$320Billion: 1.1-2.3% GDP." This is solely for core ITS safety and flow-efficiency, and does not include what appear to be (bases on published studies for other nation's planned C-HALO, including Australia) equal or greater benefits to the non-ITS domains that use or need high accuracy location. The total benefits will made C-HALO one of the principal "infrastructures" in the nation (in any nation).

C-HALO and services it enables can only build upon a proper radio-spectrum base. Ideal for this is the spectrum of Petitioners, of which AMTS is critical: (i) The 35 and 43 MHz of Petitioners is for the noted fully ubiquitous (but low data rate: only N-RTK and select limited security and emergency information can be accommodated) MBC, (ii) *the AMTS (and certain adjacent 220 MHz Petitioners hold) of Petitioners is clearly needed for the majority of the two-way and one-way communications to vehicle and other things employing C-HALO: for coverage of the nations land and maritime transportation routes for the constant data transmissions needed*, and (iii) the 900 MHz of Petitioners (6-7 MHz total in most all parts of the nation) is needed for the highest-traffic areas (cities and some special rural industry and resorts), and for certain terrestrial "multilateration" location to augment GPS (to help resolve the problems noted above in footnote 7.

For vehicle-based radios (that have ample room and power supply), Software Defined Radio ("SDR") and Cognitive Radio ("CR") techniques, using all these bands, an various protocols, will greatly facilitate and increase spectrum efficiencies, capacities

and performance.<sup>8</sup>

This is the best collection of spectrum for the above-noted critical purposes in frequency ranges and quantities. *We challenge anyone to show otherwise, in public published debate. We say that since most opponents or doubters have little real interest or knowledge of these areas and instead use simplistic views and jargon to suggest things that do not stand up to scrutiny, for purposes that, at best, are not in the public interest.*

AMTS, as explained above, is a rare spectrum band, needed for the above-noted purposes including since it: (i) is in a frequency range that provides the RF propagation needed (long range and good in high-fading mobile environment) (above 400 MHz is not nearly as good, and 225-400 is all US DOD spectrum); (ii) has an ample amount of spectrum for the data capacity needed; and (iii) is in block spectrum (not non-adjacent narrow channels) to allow more-advanced technologies than traditional narrowband FDMA, such as certain wider-band OFDM-based technologies (some that are now, and other that will become, available in this range)—all three of which are needed for noted critical purposes that focus on land<sup>9</sup> and maritime ITS transportation.

AMTS should not be wasted on fixed-wireless, since that can use higher frequencies (even above 1 GHz) due to the far more RF friendly paths that can be

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<sup>8</sup> SDR and CR as just described are substantially advanced and proven in more-recent military wireless, but is only solely being considered by the US professional mobile radio (“PMR”) market, including since few in that market have the “greenfield” spectrum to consider major new systems that could justify a move to SDR and CR (long term far better and more spectrum- and cost- efficient, but short term more expensive), and also since that market is *not* forward looking and acting in general, but is lead (“around by the nose”) by the dominant equipment vendors, and those with close ties, that do not try for advances they cannot make easy money on, and other reasons far short of good engineering and execution in the public interest (that this PMR market is meant to serve). Petitioners are not part of that constrained PMR market. There is more technical capability in kids toys these days than in most all US PMR radio systems and terminals and that is absurd and damaging.

<sup>9</sup> Use of some modest amount of 217-222 MHz for railroad PTC is reasonable, but (1) PTC is not reasonable *as a stand-alone application* to justify new wireless for railroads (including by use of tax-payer “stimulus” or other funds): that is the conclusion, shown in detail, of objective experts, (2) the PTC signaling itself will use only a modest amount of wireless data, (3) railroads already have VHF high-band and 900 MHz that is not used well including with more advanced spectrum-efficient equipment, and (4) railroad are very major entities that have ample financial and planning resources to plan for and bid in future auctions to buy spectrum they need (if indeed they need more)—BUT the US public land and maritime transportation markets cannot plan and go into auctions: the vast majority of persons using road vehicles and boats, and even most government and private fleet operators: That, combined, is a far larger transportation activity than railroads.



achieved, vs mobile-communication paths in adverse environments, and since fixed wireless can also use higher power more easily than mobile transceivers. AMTS is a Part 80 maritime band, which is a transportation service. That can and should be extended to land transportation as Petitioners are doing. Transportation traffic peaks in rush hour, when uses for fixed-wireless is relative low, and vice versa. Also, transportation use focuses signal along the major roadways, and generally away from areas of most use for fixed-wireless. This time and space separation allows synergistic support of critical fixed wireless services, along with the primary transportation services, using the same spectrum including AMTS (and to a large degree, the same wireless networks): however, the more difficult and critical transportation services should be the focus, as Petitioners are doing.

Transportation is more critical than the other noted services since it involves, to a far greater degree, safety of life and property, and without the noted C-HALO and the real ITS that can only result from its implementation (spacing of vehicles along and across roadways for flow efficiency, warning of impending crashes or lane departures, etc.) the nation will continue producing far too much pollution and using far too much fuel (of any kind).

In sum: AMTS is a critical transportation radio band and should remain so: both maritime and land. It should not be hoarded and blocked from the above purposes unlawfully, as PSI and MCLM are doing.

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